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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 03/09/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,773

Applicant(s)

GILL ET AL.

Examiner

Glenda P. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-17, 19-26, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2-7, 21-25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art in view of Cannon (US Patent No. 3, 778, 787).

Regarding Claims 1 and 21, Admitted Prior Art teaches a method/medium for storing data by positioning a write head over a moving storage medium and providing a write current to the write head, the method comprising:

Detecting a writing error (Page 2, Lines 1-10. Admitted Prior Art recognizes that errors such as off-track errors during a write operation are detected.);

Suspending the write current in response to the writing error (Page 2, Lines 1-10);

Repositioning data that would have been stored during the suspending of the write current (Page 2, Lines 10-12);

And supplying write current to store the repositioned data on the storage medium (Page 2, Lines 10-12 and Lines 14-16. Admitted Prior Art teaches that the device rewrites the data. It is known in the art, in order for that

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event to occur, the medium has to supply with a write current to the write head.).

Admitted Prior Art fails to teach that it suspends the write current while allowing the storage medium to continue moving. However, this feature is well known in the art as disclosed by Cannon, wherein it teaches a tape medium that when an error is detected the medium is able to stop recording while keeping the medium in motion (Pat. No. 3, 778, 787; Col. 3, Lines 27-37). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to control the signals being recorded (Pat. No. 3, 778, 787; Col. 3, Lines 15-20). Cannon and Admitted Prior Art fail to teach wherein measuring the length of the error and correcting the error if it is less than a given threshold. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches the steps of measuring the length of the error and correct it if it falls in less than a given threshold (US Patent Pub. 2002/0008928, [0143]. TAKAHASHI teaches that if the error is less than 20 bytes, then it can be corrected utilizing an on the fly correction method.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Cannon and Admitted Prior Art's invention in order to adequately locate and correct errors (US Patent Pub. 2002/0008928, Abstract).

Regarding Claim 2, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Admitted Prior Art also teach comparing data written to the data read from the media (Page 2, Lines 1-10. Admitted Prior Art recognizes that errors such as off-track errors during a write operation are detected. It is known in the art that in order for the medium to detect an error, a comparison has to be done in that process.) and repositioning of the data if any

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error occurs during a writing operation (Page 2, Lines 10-12). Admitted Prior Art fails to teach wherein the errors are compared to a threshold based on encoded error correction. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches a comparison done between the between counted error with an threshold based on error correction code (also called error correction information) (Pat. Pub No. 2002/0008928; Fig. 4B). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to be able to make a comparison in order for the medium to correct the errors that may have occurred (Pat. Pub No. 2002/0008928; See Abstract).

Regarding Claim 3, Admitted Prior Art and Cannon teach all the limitations of Claim 1. Admitted Prior Art also teach comparing data written to the data read from the media (Page 2, Lines 1-10. Admitted Prior Art recognizes that errors such as off-track errors during a write operation are detected. It is known in the art that in order for the medium to detect an error, a comparison has to be done in that process.) and repositioning of the data if any error occurs during a writing operation (Page 2, Lines 10-12. Admitted Prior Art teaches that if an actual error occurs, the medium repositions and writes the stored data. It is known that if the data is repositioned, the medium performs retry operations and repositions and records if the errors cannot be corrected.). Admitted Prior Art fails to teach wherein the errors are compared to a threshold based on encoded error correction. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches a comparison done between the between counted error with an threshold based on error correction code (also called error correction information) (Pat. Pub No. 2002/0008928; Fig. 4B). It would have been obvious to a person of ordinary skill

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in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to be able to make a comparison in order for the medium to correct the errors that may have occurred (Pat. Pub No. 2002/0008928; See Abstract).

Regarding Claim 4, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Admitted Prior Art also teach wherein the writing error is based on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 5, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 4. Admitted Prior Art also teach wherein the writing error is based solely on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 6, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Admitted Prior Art also teach indicating a writing error based on the write head positioning information (Page 2, Lines 1-10. Admitted Prior Art teaches that the medium detects when it is off-track in order to prevent overwriting (It is known in that the writing operation is done by the write head.)).

Regarding Claim 7, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Cannon also teach that the medium is a tape (Pat. No. 3, 778, 787; See Fig. 3). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to control the signals being recorded (Pat. No. 3, 778, 787; Col. 3, Lines 15-20).

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Regarding Claim 22, Admitted Prior Art and Cannon teach all the limitations of Claim 21. Admitted Prior Art also teach comparing data written to the data read from the media (Page 2, Lines 1-10. Admitted Prior Art recognizes that errors such as off-track errors during a write operation are detected. It is known in the art that in order for the medium to detect an error, a comparison has to be done in that process.) and repositioning of the data if any error occurs during a writing operation (Page 2, Lines 10-12). Admitted Prior Art fails to teach wherein the instruction for indicating a error when the data exceed a threshold. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches a comparison done between the between counted error with an threshold (also called error correction information) (Pat. Pub. No. 2002/0008928; See Abstract. TAKAHASHI teaches that it generates an error if the comparator finds an error in the data being compared.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to be able to make a comparison in order for the medium to correct the errors that may have occurred (Pat. Pub No. 2002/0008928; See Abstract).

Regarding Claim 23, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 21. Admitted Prior Art also teach comparing data written to the data read from the media (Page 2, Lines 1-10. Admitted Prior Art recognizes that errors such as off-track errors during a write operation are detected. It is known in the art that in order for the medium to detect an error, a comparison has to be done in that process.) and repositioning of the data if any error occurs during a writing operation (Page 2, Lines 10-12. Admitted Prior Art teaches that if an actual error occurs, the medium repositions and writes the stored data. It is known that if the data is repositioned, the medium performs retry operations and repositions and records if the

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errors cannot be corrected.). Admitted Prior Art fails to teach wherein the instruction for indicating a error when the data exceed a threshold. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches a comparison done between the between counted error with an threshold (also called error correction information) (Pat. Pub. No. 2002/0008928; See Abstract. TAKAHASHI teaches that it generates an error if the comparator finds an error in the data being compared.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to be able to make a comparison in order for the medium to correct the errors that may have occurred (Pat. Pub No. 2002/0008928; See Abstract).

Regarding Claim 24, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 21. Admitted Prior Art also teach wherein the instructions of indicating a writing error is based on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 25, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 24. Admitted Prior Art also teach wherein the instructions of indicating a writing error is based solely on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 26, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 21. Admitted Prior Art also teach instructions for indicating a writing error based on the write head positioning information (Page 2, Lines 1-10. Admitted Prior Art teaches that the medium detects when it if off-track in order to prevent overwriting (It is known in that the writing operation is done by the write head.)).

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3. Claims 11, 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al. (US Patent No. 6, 519, 715) in view of Cannon (US Patent No. 3, 778, 787), Admitted Prior Art, TAKAHASHI and Ide et al. (US Patent No. 6, 327, 112).

Regarding Claim 11, Takashi et al. teaches a system for storing data on a moving storage medium, the system comprising:

A servo position control for positioning a read/write head relative to the storage medium and providing a tracking signal indicative of read/write head position relative to tracking information on the storage medium (Pat. No. 6, 519, 715; Col. 1, Lines 41-50. Takashi et al. teach a servo controller that is able to position the head according to the servo information that is supplied.);

And a processor for grouping data to be stored on the storage medium, adding write pass information, and encoding error correction and detection information in the data, and selectively supplying a write signal to the read/write head to store the data on the storage medium (Col. 1, Lines 51-67);

Takashi et al. fail to teach wherein the processor suspends the write signal in response to detection of a writing error. However, this feature is well known in the art as disclosed by Ide et al., wherein it teaches that when an error is detected, the processor commands to stop the recording operation (Pat. No. 6, 327, 112; Col. 4, Lines 10-13). Takashi et al. and Ide et al. fail to teach the medium to be rotating even if the write signal is suspended, repositioning the medium and supplying a write signal once the head has been repositioned. This feature is well

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known in the art as disclosed by Admitted Prior Art, wherein it teaches the suspending of the write current in response to the writing error (Page 2, Lines 1-10); repositioning the data that would have been stored (Page 2, Lines 10-12); supplying a write current to store the repositioned data on the moving storage medium (Page 2, Lines 10-12 and Lines 14-16. Admitted Prior Art teaches that the device rewrites the data. It is known in the art, in order for that event to occur, the medium has to supply with a write current to the write head.). Takashi et al., Ide et al., and Admitted Prior Art fail to teach that it suspends the write current while allowing the storage medium to continue moving. However, this feature is well known in the art as disclosed by Cannon, wherein it teaches a tape medium that when an error is detected the medium is able to stop recording while keeping the medium in motion (Pat. No. 3, 778, 787; Col. 3, Lines 27-37). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order for the medium to control the signals being recorded (Pat. No. 3, 778, 787; Col. 3, Lines 15-20). Cannon and Admitted Prior Art fail to teach wherein measuring the length of the error and correcting the error if it is less than a given threshold. However, this feature is well known in the art as disclosed by TAKAHASHI, wherein it teaches the steps of measuring the length of the error and correct it if it falls in less than a given threshold (US Patent Pub. 2002/0008928, [0143]. TAKAHASHI teaches that if the error is less than 20 bytes, then it can be corrected utilizing an on the fly correction method.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Cannon and Admitted Prior Art's invention in order to adequately locate and correct errors (US Patent Pub. 2002/0008928, Abstract).

Regarding Claim 13, Takashi et al., Cannon, Admitted Prior Art, TAKAHASHI and Ide et al. teach all the limitations of Claim 11. Admitted Prior Art also teach wherein the writing error is based on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 14, Takashi et al., Cannon, Admitted Prior Art, TAKAHASHI and Ide et al. teach all the limitations of Claim 13. Admitted Prior Art also teach wherein the writing error is based solely on the positioning of the write head relative to the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches an off-track event or tracking error.).

Regarding Claim 15, Takashi et al., Cannon, Admitted Prior Art, TAKAHASHI and Ide et al. teach all the limitations of Claim 11. Admitted Prior Art also teach wherein positioning of the write head relative to the storage medium is detected based on a comparison of data written to, and read from, the storage medium (Page 2, Lines 1-10. Admitted Prior Art teaches that the medium detects when it is off-track in order to prevent overwriting (It is known in the art that the writing operation is done by the write head.). Admitted Prior Art teaches an off-track event or tracking error (It is known in the art, that in order for off-track event to be detected, a comparison has to be performed.).). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi et al.'s invention in order to improve the performance in the system (Page 2, Lines 14-16).

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al., Admitted Prior Art, Cannon (US Patent No. 3, 778, 787), TAKAHASHI and Ide et al. (US Patent No. 6, 327, 112) as applied to claims 11 above, and further in view of Ichihara et al. (US Patent Publication No. 2002/0101674). Takahashi et al., Admitted Prior Art, Cannon, and Ide et al.

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teach all the limitations of Claim 11. Takahashi et al., Admitted Prior Art, Cannon, and Ide et al. fail to teach wherein the processor compares with a threshold based on a error correction information. However, this feature is well known in the art as disclosed by Ichihara et al., wherein it teaches a processor that compares and detects errors (Pat. Pub. No. 2002/0101674; [0006]). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi et al.'s invention in order for the medium to correct the errors with high accuracy (Pat. Pub. No. 2002/0101674; [0013]).

5. Claims 9, 10, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art, Cannon and TAKAHASHI as applied to claims 1 and 21, respectively above, and further in view of Ikeda (US Patent No. 5, 905, 532).

Regarding Claim 9, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Admitted Prior Art and Cannon fail to teach wherein formatting data for writing by grouping data into sub-blocks, adding sub-block sequencing information, write pass information, and error detection information to each sub-block of the data. However, this feature is well known in the art as disclosed by Ikeda, wherein it teaches a typical block of data, wherein it has an ID sector (This sub-block identifies the track that was recorded. It is known in the art that the ID distinguishes the particular track from the rest of the tracks in a sector.), sequencing information (The data block has a sync sub-block.), and an error detection information (also known in the art as an error correction code) (Pat. No. 5, 905, 532; See Fig. 1B and Col. 1, Lines 36-40). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order to improve the performance in the medium.

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Regarding Claim 10, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 1. Admitted Prior Art and Cannon fail to teach distinguishing current data from previously written data stored on the moving storage medium. Ikeda further teach distinguishing current data from previously written data stored on the storage system (Ikeda teaches a sub-block of data wherein it has an ID sector (This sub-block identifies the track that was recorded. It is known in the art that the ID distinguishes the particular track from the rest of the tracks in a sector.)).). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order to improve the performance in the medium.

Regarding Claim 28, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 21. Admitted Prior Art and Cannon fail to teach instructions for formatting data for writing by grouping data into sub-blocks, adding sub-block sequencing information, write pass information, and error detection information to each sub-block of the data. However, this feature is well known in the art as disclosed by Ikeda, wherein it teaches a typical block of data, wherein it has an ID sector (This sub-block identifies the track that was recorded. It is known in the art that the ID distinguishes the particular track from the rest of the tracks in a sector.), sequencing information (The data block has a sync sub-block.), and an error detection information (also known in the art as an error correction code) (Pat. No. 5, 905, 532; See Fig. 1B and Col. 1, Lines 36-40). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order to improve the performance in the medium.

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Regarding Claim 29, Admitted Prior Art, Cannon and TAKAHASHI teach all the limitations of Claim 21. Admitted Prior Art and Cannon fail to teach instructions for distinguishing current data from previously written data stored on the moving storage medium. Ikeda further teach distinguishing current data from previously written data stored on the storage system (Ikeda teaches a sub-block of data wherein it has an ID sector (This sub-block identifies the track that was recorded. It is known in the art that the ID distinguishes the particular track from the rest of the tracks in a sector.)).). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Admitted Prior Art's invention in order to improve the performance in the medium.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al. in view of Cannon, Admitted Prior Art, TAKAHASHI and Ide et al. as applied to claim 13 above, and further in view of Pirzadeh (US Patent No. 5, 771, 131). Takashi et al. in view of Cannon, Admitted Prior Art and Ide et al. teach all the limitations of Claim 13. Takashi et al. in view of Cannon, Admitted Prior Art and Ide et al. fail to teach wherein positioning of the write head relative to the storage medium is detected based on write head tracking information stored on the storage medium. However, this feature is well known in the art as disclosed by Pirzadeh, wherein it teaches that the position of the head towards the storage medium is controlled by the servo burst information (It is known in the art that the servo burst information is used for adequately positioning the head while tracking data in a storage medium.) and a servo system (US Patent No. 5, 771, 131; Col. 12, Lines 13-18). It would have been obvious to person of ordinary skill in the art, at the time the invention was made, to modify Takashi et al.'s invention in order to achieve the optimized position error signal (Pat. No. 5, 771, 131; Abstract).

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7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi et al., Cannon, Admitted Prior Art, TAKAHASHI and Ide et al. as applied to claim 11 above, and further in view of Culp (US Patent No. 4, 932, 352). Takashi et al., Cannon, TAKAHASHI and Admitted Prior Art and Ide et al. teach all the limitations of Claim 11. Takashi et al., Cannon, Admitted Prior Art and Ide et al. fail to teach wherein the storage medium comprises a magnetic tape having read/write head positioning information and a plurality of generally parallel data channels. However, this feature is well known in the art as disclosed by Culp, wherein it teaches a tape medium wherein it contains parallel data channels and head positioning information (Pat. No. 4, 932, 352; Col. 2, Lines 15-20). It would have been obvious to a person of ordinary skill in the art to modify Takashi et al. in order to detect historical and present data (Pat. No. 4, 932, 352; Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gpr
March 5, 2004.



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